

THAT WHICH IS CLAIMED IS:

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- H P E G E S E L L E S E*
1. A thermal benzylic bromination process for producing a benzyl bromide which process comprises:
 - a) contacting gaseous bromine with a reaction mixture having an organic, liquid phase initially comprising an aromatic ring-containing compound bearing one benzylic carbon atom, which itself bears at least two, and preferably three hydrogen atoms wherein optionally, said aromatic ring is further substituted by 1 to 2 substituents selected from the group consisting of saturated hydrocarbyl groups, unsaturated hydrocarbyl groups in which the unsaturation is exclusively aromatic unsaturation, halogen atoms, hydroxy, amino, alkylamino, dialkylamino, benzoyl, and aminobenzoyl groups, the total amount of bromine relative to said aromatic compound being in the range of from about 0.2 to about 1.2 moles of bromine per mole of said aromatic compound;
 - b) thoroughly dispersing the gaseous bromine into said liquid phase, such that localized bromine accumulation therein is suppressed; and
 - c) having the temperature of said liquid phase in the range of about 100°C to about 170°C sufficient to effect benzylic bromination of said ring substituent.
 2. A process of Claim 1 wherein said reaction mixture includes water in an amount sufficient to effect at least partial removal of byproduct HBr.
 3. A process of Claim 1 wherein said gaseous bromine is diluted with at least one inert gas.
 4. A process of Claim 3 wherein at least a portion of the inert gas removes from said reaction mixture at least a portion of the HBr byproduct.

5. A process of Claim 4 wherein said reaction mixture includes water in an amount sufficient to effect at least partial removal of byproduct Hbr.

6. A process of any of Claims 1-5 wherein said aromatic compound is toluene, p-bromotoluene, p-fluorotoluene, or 4-bromo-2-fluorotoluene.

7. A thermal benzylic bromination process for producing a benzal bromide which process comprises:

- a) contacting gaseous bromine with a reaction mixture having an organic, liquid phase initially comprising an aromatic ring-containing compound bearing one benzylic carbon atom, which itself bears at least two, and preferably three hydrogen atoms wherein optionally, said aromatic ring is further substituted by 1 to 2 substituents selected from the group consisting of saturated hydrocarbyl groups, unsaturated hydrocarbyl groups in which the unsaturation is exclusively aromatic unsaturation, halogen atoms, hydroxy, amino, alkylamino, dialkylamino, benzoyl, and aminobenzoyl groups, the total amount of bromine relative to said aromatic compound being in the range of from about 1.5 to about 2.5 moles of bromine per mole of said aromatic compound,;
- b) thoroughly dispersing the gaseous bromine into said liquid phase reaction mixture such that localized bromine accumulation therein is suppressed; and
- c) having the temperature in the range of about 100 °C to about 170 °C sufficient to effect dibromination of said substituent.

8. A process of Claim 7 wherein said reaction mixture includes water in an amount sufficient to effect at least partial removal of byproduct HBr.

9. A process of Claim 7 wherein said gaseous bromine is diluted with at least one inert gas.

10. A process of Claim 9 wherein at least a portion of the inert gas removes from said reaction mixture at least a portion of the HBr byproduct.
11. A process of Claim 10 wherein said reaction mixture includes water in an amount sufficient to effect at least partial removal of byproduct HBr.
12. A process of any of Claims 7-11 wherein said aromatic compound is toluene, p-bromotoluene, p-fluorotoluene, or 4-bromo-2-fluorotoluene.
13. A thermal benzylic bromination process for producing a benzyl bromide, which process comprises:
- feeding gaseous bromine directly into and below the surface of a reaction mixture having an organic, liquid phase and initially comprising an aromatic ring-containing compound bearing one benzylic carbon atom, which itself bears at least two, and preferably three hydrogen atoms wherein optionally, said aromatic ring is further substituted by 1 to 2 substituents selected from the group consisting of saturated hydrocarbyl groups, unsaturated hydrocarbyl groups in which the unsaturation is exclusively aromatic unsaturation, halogen atoms, hydroxy, amino, alkylamino, dialkylamino, benzoyl, and aminobenzoyl groups, the total amount of bromine relative to said aromatic compound being in the range of from about 0.2 to about 1.2 moles of bromine per mole of said aromatic compound;
 - thoroughly dispersing said feed of gaseous bromine within said liquid organic phase such that localized bromine accumulation therein is suppressed; and
 - having the temperature in the range of about 100°C to about 170°C sufficient to effect benzylic bromination of said ring substituent.
14. A process of Claim 13 wherein HBr byproduct is removed from said reaction mixture.

15. A process of Claim 14 wherein said reaction mixture includes water in an amount sufficient to effect at least partial removal of byproduct HBr.
16. A process of Claim 13 wherein said gaseous bromine is diluted with at least one inert gas.
17. A process of Claim 13 wherein said gaseous bromine is diluted with at least one inert gas, and wherein at least a portion of the inert gas removes from said reaction mixture at least a portion of the HBr byproduct.
18. A process of Claim 17 wherein said reaction mixture includes water in an amount sufficient to effect at least partial removal of byproduct HBr from said liquid organic phase.
19. A process of any of Claims 13-18 wherein said aromatic compound is toluene, p-bromotoluene, p-fluorotoluene, or 4-bromo-2-fluorotoluene.
20. A process of Claim 13 wherein said reaction mixture further comprises an inert liquid solvent, and wherein the gaseous coproduct HBr is removed from the reaction mixture at a rate sufficient to maintain the concentration of HBr in the organic liquid phase of said reaction mixture below about 5 wt% based on the weight of said organic liquid phase.
21. A process of Claim 13 wherein said reaction mixture is maintained at reflux during at least a substantial portion of the time the bromine is being fed.
22. A process of Claim 1 wherein the total amount of bromine relative to said aromatic compound is in the range of from about 0.4 to about 0.6 mole of bromine per mole of said aromatic compound.

23. A process of Claim 13 wherein the total amount of bromine relative to said aromatic compound is in the range of from about 0.4 to about 0.6 mole of bromine per mole of said aromatic compound.

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